

SAMPLE REPORT

INSTRUCTIONS FOR CAMERA-READY REPORT--DO NOT INCLUDE IN FINAL VERSION

Your version must be 3 pages maximum. Use Times Roman, Courier, Prestige fonts--12 characters per inch (cpi) is preferred (this sample) or 10 cpi (this sample) is permitted. **Margins are as follows: left=1.5", top, bottom and right=1"** on white paper. Please do not use page numbers. SEND TO ONR (Attn: Dr. J. Majde) FOUR COPIES OF THIS NARRATIVE AND ATTACH ONE COPY OF ALL CITED PAPERS AND ABSTRACTS, AND A DISKETTE (PC FORMAT) CONTAINING THE REPORT.

ANNUAL PROGRESS REPORT

GRANT #: N00014-56-J-0011

PRINCIPAL INVESTIGATOR: Br. Gregor J. Mendel (e-mail: mendelg@brno.mon)

INSTITUTION: Brno Monastery

GRANT TITLE: Experiments in Plant Hybridization

REPORTING PERIOD: 1 June 1856 - 31 May 1857 (12 months)

AWARD PERIOD: 1 June 1855 - 31 May 1858

OBJECTIVE: To investigate the patterns of color distribution in hybridized Pisum sativum; to develop a theory of information transfer in living organisms.

APPROACH: Pisum sativum are planted in open ground in groups of 20. When flowers begin to form the plants are covered with cotton netting to prevent pollination by insects, etc. Flower color is recorded and cross- or inter-fertilization is conducted as soon as flowers are mature using a camel's hair brush. Netting cover is maintained until flowers die. Resultant seed pods are collected and peas are grouped as to morphology and counted.

ACCOMPLISHMENTS (last 12 months): We have completed one cross-fertilization cycle in the violet and white varieties of sweet peas selected for the study. Several seeds succumbed to mold and plants were lost due to excessive rain, but those hybrids that successfully formed seeds were assessed for pod and seed characteristics in the fall, and the seeds were planted this spring as soon as danger of frost was past. The hybrid plants (which we term the F₁ generation) are now beginning to bloom, and the preliminary results confirm our earlier observations, i.e., the white color is not expressed unless both parental plants are white in color. The violet color appears to consistently mask the white color if one parent is violet. Tracking the seeds is made easier by the fact that the seeds of the white flowers have a light-colored seed coat.

SIGNIFICANCE: The analysis of the color patterns in this manner should clarify which traits are what we term "dominant" and which are weak or "recessive". Our studies should provide information as to how physical characteristics are distributed in plants, and perhaps other organisms as well.

WORK PLAN (next 12 months): The specific objective of the next year's work is to characterize the progeny of the F₁ generation (the F₂ generation). Manual fertilization is being carefully conducted according to our original proposal: half will be self-fertilized and half will be cross-fertilized with the parental white or violet plants. This fall we will harvest all viable seed pods and continue to characterize their shape and seed characteristics. Next spring we will plant the two groups of F₂ seeds and analyze their flower and seed color distribution.

As our data are becoming somewhat complex we are working to develop an improved method for labeling the plants and seeds. For data analysis we are considering the purchase of a device we have learned about made in China called an abacus, which is said to make arithmetical calculations easier. If we can locate such a device we may be able to purchase it with funds put aside for fertilizer.

PUBLICATIONS, ABSTRACTS, TECHNICAL REPORTS, AND PATENT DISCLOSURES OR APPLICATIONS (last 12 months):

1. Mendel, G.J. (1857) Observations on flower color of *Pisum sativum* following cross-breeding of violet and white parental strains. Arch. Agricult. Sci. 3: 42-56.
2. Mendel, G.J. (1857) Results of a study on flower color transmission in *Pisum sativum*. Abstract presented 1 Apr 1857, Slovak. Acad. Sci. Proc., p 12.
3. Mendel, G.J., A theory of information transmission via plant seeds. Submitted to J. Theoret. Biol.